2005
CURRICULUM OUTLINE
FOR EPA DIVING PROGRAM

FIRST DAY: CLASSROOM	
0800 - 0830 INTRODUCTION:	Program
	Facilities
	Instructors/Team Leaders
	Registration
	Review of diving qualifications, medicals, etc.
	Team selection
	Transportation, hotels, etc.
	Inventory of student diving equipment
	Assign Team Leader
0830 - 1000 OSC ISSUES - HYPOTHERMIA/HYPERTHERMIA:	Body core temperature changes and their physiological effects
	Heat Transfer: • Conduction • Convection • Radiation
	Prevention of heat loss in cold water
	Prevention of overheating
	Restoring body heat in hypothermia
	Lowering body temperature in hyperthermia
	Decompression tables and cold-water diving
	Missed decompression procedures
	Blowup decompression procedures

	Polluted water diving
THE VARIABLE-VOLUME DRY SUIT:	Purpose of the dry suit
	Pros/cons of Viking vs. other variable-volume dry suits
	Preparing the dry suit for diving: • Inspection procedures for holes, etc. • Inspection and care of the zipper. • Check on inlet/outlet valves • Care of the neck seal and cuffs before entry • Operation, care and inspection of inflation hose • Repairing the suit • Proper fit and its importance • Lubrication of neck seal and cuffs before entry • Mobility in the dry suits • Cleaning of the suit after normal use • Disinfecting wash down of polluted water dive
DANGERS OF USING DRY SUITS:	Blowups - how they can occur and contribute to embolism: • Air in the legs when inverted • Dropping of the weight belt • Using the dry suit as a lift bag • Stuck inlet, inflator hose/valve • BC fully inflated preventing access to purge valve • Nonfunctioning purge valve
	Holes in upper portion of dry suit and loss of buoyancy
	Diver in inverted position due to air in legs

	Out of air and difficulty in maintaining buoyance
	Suit too large and loss of fins due to air in feet
	Suit too tight
BLOWUP PREVENTION AND RECOVERY METHODS:	Don't use the variable-volume suit as a lift bag
	Ensure adequate training in use of the dry suit
	Know emergency venting procedures: • Neck seal • Wrist • Purge valve • Flare-outs to slow ascent
	Don't use BC over purge and inlet valves
	Use shoulder harness or other means of holding weight belt in place, especially with weak buckles
WEIGHT BELTS:	Use of a heavily weighted scuba weight belt and problems (buckles not holding)
	The pros and cons of using harnesses on weight belts or using commercial-type belts with harnesses
	The use of weights: types, sizes, and how to place them for best position in the water
	Dangers of dropping weight belts (blowups)
	Weighting for the dive and check buoyance
ANKLE WEIGHTS:	Keep feet down helping to prevent inverted blowups
	Allow for more air in legs, keeping lower half of the diver warmer

	Some weight retained if weight belt is lost
	Help to keep feet in boots of dry suit if diver gets inverted
	Make swimming harder, especially long distances
FIN STRAPS:	Help to keep fins on when jumping into water or when diver gets into inverted position and air gets into legs
NECK SEAL:	Proper fit for good seal around the neck
	How to wear the seal
	Lubrication and ease of donning
	Venting suit through neck seal
	Leaks caused by long hair
	Advantages of neck seals in surface-supplied diving
HOODS:	Possible external squeeze
	Problems associated with air in hood on ascent
	Elimination of air in hood with a hole
	Care of hood and seal
	Long hair and problem associated with leaks
	Problems of leaks due to overlapping of hood and mask
	Venting from hood and neck seal
AIR INLET VALVE:	Proper use for buoyancy control (ascent/descent)
	Cleaning and inspecting before dive
	Dangers involved with stuck inlet valve
	Quick-connect to air hose and its function

	Problems if quick-connect becomes loose under water
AIR OUTLET VALVE (PURGE):	Proper use (ascent/descent)
	Cleaning, inspecting and lubricating
	Stuck purge valve
	Leaky valve
AIR HOSE:	Proper type and fit
	Purpose
	Quick-connect
	Adapting hose to the first stage: • U.S. models must use an adaptor with Teflon set to change from metric thread • A "T" swivel might be needed if only one low-pressure port on first stage • A new modification-type hose is used to prevent fitting from coming off at depth
	Quick-connect is cleaned and lubricated for proper operation
AIR IN SUIT:	Insulation for warmth
	Buoyancy control
	Changes in buoyancy due to depth
	Blowups (inverted/upright)
UNDERWEAR:	Types, purposes and insulation qualities
	Additional weight with additional underwear
CUFFS:	Importance of proper fit
	Venting from cuffs
	Lubrication

	Repair
	Type of material
ZIPPER:	Care and lubrication of zipper
FINS:	Types of dry suits
	Proper fit
	Shoes and suit interface problems
	Fin straps and their importance
	Dangers of losing fins: • When jumping into water • When diver is in inverted position
1100 - 1130 SUIT SELECTION: (Check for fit) INVENTORY	Each student is fitted with a suit for the duration of the program
	Suits are checked by students for leaks
	Suits repaired as needed
	Each student is issued an air inlet hose
	Students attach air inlet hose to first stage to ensure proper threads from U. S. to metric
	Each student is issued fins straps
ACCESSORIES:	Weighted shoes for stability
	rubbers or galoshes for protection
	Gloves: types, insulation values, and duration of use in cold water for each type
	Under-gloves for added insulation
	Full-faced mask for added warmth/ communications

	Hats, pots and/or helmets and how they can be mated to the dry suit: • Neck seal, hat, pot and/or helmet not attached • Neck ring, hat, pot and/or helmet attached
	Mixed gas diving and different heating values
	Coveralls: types, reasons for wearing, etc.
	Cleaning, storing and/or handing the dry suit
1130 - 1230 LUNCH	
1300 - 1630 POOL (Shallow End):	Participants: • Working Diver candidates - swim test
DRY SUIT CHECKOUTS:	Program instructor demonstrates getting into and out of the dry suit
	All students prepare their suits for diving: • Set up dive stations with team leader/buddy • Set up scuba tank and regulator • Lubricate dry suit, cuffs, neck seal, and zipper as needed
	Students dress in dry suit
	Students checked by instructor for: • Proper fit • Proper equipment • Proper connections of air hose to regulator and suit • Proper type, fit and weight on weight belt • Proper fins and fit with fin straps

	Students shall enter end of pool for self-checkout of: • Suit buoyancy with and without weights • Use of air inlet valve and purge valve • Ascent and descent with use of air inlet and purge valves, and proper position for use • Getting into inverted position, air in legs • Swimming with and without ankle weights • Mobility in suit • Venting from wrists and neck seal • Swimming with and without weight belt • Barrel rolls
POOL :	Deep End
DRY SUIT CHECKOUTS/IN WATER RESCUE:	Students enter deep end of pool for self-checkout of dry suit: • Perform exercises in item 5 above • Check suit squeeze • Controlled ascents and non-controlled ascents
1630 - 1700 SECURE FROM POOL ACTIVITIES:	Undress and secure diving dress and equipment
	Report to team leader for debriefing
	Report defective equipment and repairs needed
1700 - 1800 INTRODUCTION TO DIVING ACCIDENT MANAGEMENT:	Homework assignments

SECOND DAY	**The purpose** of the dive is to let students become familiar with their diving dress (dry suits) for the first time in open-water conditions. Divers will work with dive-masters and demonstrate performance of all normal and emergency procedures as practiced in the pool the previous day. Students who do not show proficiency will remain one-on-one with the team leader until proficiency is demonstrated. This will allow students to move to the next part of the training (working with another student). The rate of advancement through these exercises is determined by the instructor/team leader.
	The team leader/instructor will ensure that dive area is cleared for diving in accordance with the EPA Diving Directives. The diving accident management emergency plan must be in effect and understood by all involved, in accordance with the EPA Diving Directives and the EPA Diving Accident Management Manual.
	The students will use all dry suit techniques as employed in the previous day's pool session. The afternoon session will use ascending/descending lines to control rates, but will make excursions using buddy lines and diver-to-surface lines. While making these excursions in limited visibility, divers will use a compass. The tending diver on the surface will signal divers below with the line pull signals when he/she wants them to come up for any reason.

	A diving safety boat must be in the water in case of diving emergency, and equipped to handle emergencies in accordance with EPA Diving Directives. All appropriate clearances must be maintained for diving, and appropriate flags must be flown in accordance with the EPA Diving Directives.
0800 - 0845	Briefing and schedules for day's program
	Homework review (physics/physiology)
	Question and answer period
	Debriefing of previous day's water work by team leaders
0845 - 1000 DIVING ACCIDENT MANAGEMENT:	Pressure: • ATA, FSW and Psi
	Physics: • Dalton's Law (P - P1 + P2 + P3 ... etc.) • Partial pressure of gases
	Boyle's Law: • Pressure vs. Volume • Pressure vs. Diameter
	Boyle's Law as related to the skin diver (breath holding)
	Boyle's Law as related to scuba diving and breathing under pressure
1000 - 1015 BREAK	
1015 - 1100 INTRODUCTION TO ADVANCED DIVE EQUIPMENT:	AGA (Use and Service)
	Wireless communication
	Pinger locator
	Hand pull signals
	Advanced equipment briefing

	Wireless communication systems
	Nitrox Diving
1100 - 1145 TEAM BRIEFING FOR AFTERNOON WATER WORK	
1145 - 1230 LUNCH (Students are to be at dock by 12:30)	
1300 - 1630 OPEN WATERS - TEAM LEADERS ORGANIZE TEAMS AND DIVE STATIONS/SITES:	Teams report to the dive site
	Leaders brief teams on their respective dive projects
	Teams set up dive stations, check all gear, and work with buddy to ensure he has all gear and understands the dive plan
	Dive teams dress in dry suits
	Buddies check each other, review dive plan and tables
	Team leaders check each dive team
	Divemaster and/or safety diver check each other
	Divemaster/team leader ensure diving accident management emergency plan is in effect
	Teams check out with divemaster and enter water
SECURE FROM DIVING OPERATIONS:	Secure diving projects
	Secure diving accident management network
	Inform all appropriate authorities that diving operations are secured, remove diving flags

	Secure diving equipment, undress, and clean all gear
	Debriefing by team leader
1600 - 1630 BREAK	
1600 - 1800 **CONTINUE** **DIVING ACCIDENT**	
OXYGEN ADMINISTRATION:	Types of oxygen equipment
	Oxygen administration introduction
MANAGEMENT/RESCUE FOR E.A.A.:	Prevention of diving accidents
	Physics
	Physiology
	Pathophysiology of: • Arterial Gas Embolism • Pneumothorax • Pneumopericardium • Pneumomediastinum
	Medical Causes
	Operational
	Environmental
	Early recognition of signs/symptoms of E.A.A.
	First aid of diving accident: • Use of oxygen and its importance, medical implications and pathophysiology • Protection of airway and vital signs • Oxygen safety • Oxygen deliver systems

THIRD DAY **WATER WORKS:**	**The objective** of the above dive plan is to ensure that each divemaster can supervise diving operations, in accordance with the EPA Diving Directives and this Course Outline. He/she should be confident in all emergency situations, make decisions to avoid accidents, and in the event of an accident, be able to stabilize the victim and evacuate him to the hyperbaric trauma system, if needed.
	Student divers should be able to perform all working skills of an EPA working diver, in accordance with the EPA Diving Directives and this Course Outline.
	Team leaders, diving supervisors, instructors and divemasters must observe all subordinates and report their abilities less than the standards outlined in the Course Outline and the EPA Diving Directives
	Any diver whose performance/ability/ skill/knowledge upon completion of this course does not equal that of an EPA working diver or higher, will, upon recommendation of the Training Director, through the EPA Safety Board Chairman, be dropped from the EPA Diving Program or reverted to an EPA Training Diver.
0800 - 0845 **HOMEWORK REVIEW:**	Physics/Physiology III
0845 - 0900 **TEAM LEADER REVIEW SESSION**	
0845 - 1000 **MAN AND HIS NEW ENVIRONMENT:**	Acclimation to mean sea level
	Ascending to lesser pressure (hypobaric conditions)

	Descending to higher pressure (hyperbaric conditions)
	Ascending/descending in unpressurized conditions
	Controlling physiological parameters within the body, under varying pressures
	Barotrauma (direct effects of pressure) and the semirigid spaces in the body and how they are affected
	Indirect effects of pressure (decompression sickness and density of gases): • Inward/outward gradient of inert gases from the body and importance of keeping it in balance
	NOTE: Divers attending this program should fully understand the physics, physiology and medical aspects of decompression sickness. The lecture above is a quick review, especially for non-divers, of the basic physics/ physiology of diving.
MEDICAL ASPECTS (Signs/Symptoms):	Decompression sickness • How it occurs • Onset times • Post dive early recognition of mild/severe signs and symptoms • Immediate first aid
	Examination by physician at chamber
	Transfer into chamber and related problems

	Flashback to accident site, showing victim coming to surface confused, being helped into boat and first aid being administered. Full narration of procedures as performed for a conscious and unconscious victim
	Coast Guard Alarm Office and their procedures for alerting flight crews
	Complete visual display of "bubble trouble", signs/symptoms
	Complete animated outline of the pathology of decompression sickness and extra alveolar air
REVIEW:	Importance of oxygen and its pharmacology
	Transporting an injured diver
	Liquids and aspirin and the pharmacology
1000 - 1015 BREAK	
1015 - 1100 DIVING ACCIDENT MANAGEMENT:	History of first aid procedures
	Case history of victim with management in the field and outcome at the chamber
	Case history of victim with proper first aid and evacuation
	Review of the diving accident flow chart first aid procedure: • Mild symptoms • Severe symptoms
	Step-by-step explanation of the flow chart, why and when to give oxygen, and other first aid measures

	The importance of first aid for early mild symptoms: • Fatigue • Weakness • Indifference/personality changes • Skin rash
1100 - 1200	Decontamination Procedures
	Equipment and Water Work Briefing
	Surface Supplied/Superlight 27
1200 - 1230 LUNCH	Students are to be at the dock promptly at 1230
1300 - 1630 WATER WORK - Team Briefing By Divemaster Trainee:	Teams will be assigned projects as directed by EPA Diving Instructors.
	Team leader/instructor/divemaster selection
	Team selection and other surface support personnel
	Hyperbaric accident trauma network requirements: • Emergency phone numbers • Money for emergency phone calls • Call or visit to chamber complex • Verification that local paramedics know dive site, where chamber is located, and diving accident/first aid procedures • Communication channels/ frequencies • Mechanical resuscitative equipment at site • Oxygen supply at dive site (enough to transport patient to chamber complex)

	Small boats, as needed
	Plan to remove injured diver out of water
	Surface support personnel (standby/safety diver)
	Secure dive site for diving operations: • Notification of proper authorities: harbor, Coast Guard, etc., to ensure safe diving operations
	Diving flags on shore/floats, as needed
	Safe ship dive check-off sheet, if working under boats or docks in immediate area, to ensure that they have no electronic equipment operating that could be harmful to divers (pingers, sonar, etc.), even though diving operations might not be under ships.
	Dive projects as directed by Diving Instructor: • Dry Suits • Surface Supply Diving • U/W Communications (Wireless, Hard Wire, Hand Signals, Diver Recall Systems) • Search and Recover Procedures • Underwater Tools (Flange) • Underwater Metal Detectors • Active/Passive Pinger Locators • Underwater Cutting (Mapp Gas) • Nitrox In and II
1630 - 1700 BRIEFING BY DIVING INSTRUCTORS:	Fill in Dive Log

1700 - 1800	The importance of first aid, stabilization and evacuation for severe signs/ symptoms • Joint pains • Dizziness/visual disturbance • Paralysis of face, limbs, or extremities • Feeling of blow on chest/check pain • Shortness of breath • Severe hacking cough/bloody, frothy mouth • Staggering/difficulty telling direction • Convulsions • Collapse or unconsciousness • Cessation of breathing and/or pulse
	Importance of knowing location of nearest hyperbaric trauma center and how to evacuate victim • Availability of hyperbaric physician • Availability and location of multi-place, multi-lock decompression chamber • Methods of evacuation (air/land) • Communication (phone/radio)
	Importance of qualification in first aid procedures and CPR and the importance of emergency medical equipment at site • Oxygen, type, supply and delivery system • Neurological base line equipment • Complete first aid kit for diver/marine use • fluids (oral/I.V.), I.V. by qualified persons only • Aspirin, Afrin, etc.

	Emergency evacuation procedures for paramedics, physicians and flight crews. The importance of their knowing these procedures before beginning evacuation. • Maintain breathing and heart functions, ensure airway is open and remains open • Supply oxygen to patient in transport • Ensure paramedics/physicians understand why diving accident victims must be taken directly to decompression chamber facility instead of a hospital • Ensure they understand why patient must be kept on oxygen, bubbles will reload with nitrogen and worsen condition • Keep patient out of hot sun And monitor for shock • Do not give pain killing drugs. I.V.'s can be started to prevent vascular collapse or dehydration (plain lactated ringers is I.V. of choice; otherwise, DSLR or DI/2N5). Two aspirins may be given • Instruct flight crews to fly or pressurize the aircraft to below 1000 feet (if no hazard to aircraft). Pressure as near to mean sea level is desired • Prepare a complete history of events leading up to, and including accident, and forward. All first aid measures taken and any previous medical history of patient should be forwarded with patient.

	• In the event of a fatality, all diving equipment should be forwarded to the proper authority.
	In-water decompression (pros/cons) In-water decompression should not be attempted: • It loads the bubbles more • Exposure time is too great • Environmental factors subject to change • Pros/cons of in-water treatment with oxygen • If serious symptoms exist, it is not possible to put into water. If mild symptoms, time exists to evacuate. • Missed decompression procedures (asymptomatic)
	Decompression chamber requirements (35 mm slide presentation of types/sizes/purposes) • Multi-place, multi-lock, 6 ATA • Multi-place, single-lock, 6 ATA • Mono-place (single-place), 2 ATA • Single-place, 6 ATA • Portable, inflatable (PIRC)
	Pressure must be sufficient to reduce bubble (gas embolism requires 6 atmospheres and even this only reduces the diameter of the bubble by 52%).

	Physicians should have a multi-place, multi-lock, 6 ATA • To maintain vital signs and monitor patient • Keep airway clear • Perform neurological examinations necessary to determine proper treatment/ reoccurrence of symptoms • Perform operations such as intubation, as needed.
	Pulmonary over distention cases may have air leakage causing a tension pneumothorax which requires hands-on care and continuous monitoring. Physicians must have the option of changing from oxygen to air and/or going deeper than 2 atmospheres when necessary. Mono-type chambers do not have this capability.
	Oxygen convulsions may cause respiratory arrest, close off patient's glottis, causing embolism while dropping pressure to relieve convulsions.
	It is often better to transport victims without putting them into a one-lock chamber for the above reasons. Transportation using oxygen and supine position while monitoring vitals is often the best way.

COMMUNICATIONS:	Ensure participants understand the importance of communications to: • Talk with physician on the beach • Alert the Coast Guard, if at sea • Know all important frequencies and numbers necessary to make a medical evacuation in U.S. and foreign territories (1) know all frequencies and telephone numbers for contacting shore-based paramedics (2) know all numbers for decompression chamber facilities and/or physicians attached to them (3) have copies of interna-tional/domestic chamber facilities, USN, Worldwide Hyperbaric Chamber, Shore Based, NAV SHIPS 0994-40 11
HELICOPTER EVACUATION PROCEDURES:	Try to establish communications with the helicopter. If your boat is unable to, work through another boat, if possible.
	Maintain speed of 10 to 15 knots
	Maintain course into the wind, about 20 degrees on port bow
	Put all antennas down, if possible, while continuing to maintain communications
	Secure all loose objects on/around decks
	Always let the lifting device (stretcher) touch the boat before handling, to prevent electric shock
	Place life jacket on patient

	Tie patient in basket (stretcher) face up
	If patient cannot communicate, place as much information about him as possible on note paper and pin to clothes (age, name, address, medications given, etc.)
	If patient is a diving accident victim, ensure that flight crew has a copy of or is instructed in procedures for diving accidents and will take patient to hyperbaric trauma complex (chamber)
	If patient dies, inform flight crew
	Instruct flight crews to fly as low as possible to prevent pressure changes and explain why

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FOURTH DAY **0800 - 0845**	Review Homework (Physics/Physiology III)
	Review previous day's diving project
0800 - 1000 NITROX DIVING:	Dive planning • Gas physiology (narcosis, DCS and CNS balance)
	Gas supply requirements
	Cylinder duration
	Gas analysis
	Compressor safety (lubricants, filters and the lungs)
	Decompression procedures
	Dive safety
	Contaminated water (diving and equipment) • Type of dress • Decontamination • On-site coordinator • On-site awareness of contaminants • Use of ROV's and other related equipment
1000 - 1015 BREAK	
1015 - 1130 EQUIPMENT AND WATER WORK BRIEFING:	Physics of nitrox diving
	Oxygen life support ranges
	CNS oxygen toxicity
	Equivalent air depth concept
	Nitrox decompression tables
	Oxygen safety
1200 - 1230 LUNCH	Dockside by 1230

1300 - 1630 WATER WORK	
TEAM BRIEFING BY DIVEMASTER TRAINEE, SUPERVISED BY INSTRUCTOR:	Team leader/instructor/divemaster selection
	Team selection and other surface support personnel
	Establish hyperbaric accident trauma network requirements: • Emergency phone numbers • Money for emergency phone calls • Call or visit to chamber Complex • Verification that local para-medics know dive site, and know where chamber is located, and diving accident/ first aid procedures • Communication channels/ frequencies • Mechanical resuscitative equipment at site • Oxygen supply at dive site (enough to transport patient to chamber complex)
	Small boats, as needed
	Plan to remove injured diver out of water
	Surface support personnel (standby/safety diver)
	Secure dive site for diving operations: • Notification of proper authorities: harbor, Coast Guard, etc., to ensure safe diving operations
	Diving flags on shore/floats, as needed

	Safe ship dive check-off sheet if working under boats or docks in immediate area, to ensure that they have no electronic equipment operating that could be harmful to divers (pingers, sonar, etc.), even though diving operations might not be under the ships.
	Dive projects directed by diving instructors: • Dry suits • Surface supply diving • U/W Communications (Wireless, Hard Wire, Hand Signals, Diver Recall Systems) • Search and Recovery Procedures • Underwater tools (flange) • Underwater metal detectors • Active/Passive pinger locators • Underwater cutting (Mapp Gas) • Practical use of NOAA Nitrox I and II • Teams will be assigned projects, as directed by the EPA Diving Instructors
1630 - 1715 NITROX: (continued)	Mixing
	Gas Analyzers
	Nitrox diver equipment
	Determining correct mixtures vs. depth
1715 - 1800 CONTAMINATED WATER	
FILMS (NOAA/EPA)	

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FIFTH DAY **0800 - 0845**	Review Homework (Gas Supply and Decompression Tables)
0830 - 1200	Review EPA Dive Regulations
	EPA Dive Examination
	100 questions plus decompression problems
	Review Exam
	Check in equipment
	Certification
********** **END OF COURSE** **********	
NOTE: Schedule of events, subject to change.	

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COURSE MATERIALS
(Manuals/Handouts)

FILMS/SLIDES:	Hypothermia
	Hyperthermia
	Drysuit Emergency Training Techniques
	Overview of Diving Accidents
	Microbial Hazards of Diving
	Demonstration of NOAA/EPA Contaminated Diving Protection
	Contaminated Water EPA Diving Operations
	Use of ROV's in Contaminated Water by EPA Emergency Response Team
MATERIALS/HANDOUTS:	Diving Accident Management Manual
	Instructor/Student Guide to NITROX Use
	Equipment Innovations Cut Risk for Divers
	Interim Protocol for Diving Operations in Contaminated Waters
	Microbial Hazards of Diving in Polluted Water
	Compressor, Lubricants, Filters and the Lungs
	Program Curriculum
	Dry Suit Diving/Equipment Guidelines
	Factors that Contribute to the Bends
	Homework Assignments

	Nitrox Training Manual
	USN Divers Handbook
	NOAA Diving Manual

COURSE PROJECTS (PRACTICAL)

SURFACE SUPPLIES SYSTEM (DCS) WITH COMMUNICATIONS:	The DCS-3 surface supplied air control system from PSI is a lightweight, portable dive control system for use in surface supplied diving operations.
VARIABLE VOLUME DRY SUITS:	Variable volume dry suits from Avon and Viking are used in polluted water diving. These suits are used for protection and buoyance control.
PINGER LOCATOR, PINGERS:	The Pinger Locator is a diver hand-held underwater acoustic locator system that receives signals of a certain frequency from underwater beacons. This enables the diver to locate a site that is not buoyed.
WIRELESS COMMUNICATION SYSTEMS (3):	The AQUACOM single sideband underwater communication provides diver-to-diver or diver-to-surface communication by using through-water transceivers.
SUPERLITE 27 WITH MATED DRY SUIT:	The Superlite 27, along with a dry suit and surface supplied air can be used for polluted water diving, for mixed gas diving, when protective head gear is needed, or when communications are needed.

DIAMOND REEF SYSTEM:	The Diamond Reef System is a unique, artificial reef composed of PVC diamonds suspended at various depths. The Diver is required to swim through each diamond without touching them. This training device is excellent for improving buoyancy control.
DRUM OVERPACK AND RECOVERY:	One 55 gallon drum will be overpacked underwater and recovered by divers dressed for contaminated water diving. The diver will then be decontaminated with a pressure washer.
LIFT BAGS:	50 lb., 100 lb., and 200 lb. Bags are used to bring heavy equipment or samples safely to the surface for recovery.
FLANGE:	This project consists of a 36 nut, bolt, and washer flange that will be disassembled and then assembled by divers in order to expose them to working conditions while using a VVDS.
SEARCH AND RECOVERY:	A team of divers use a jack-stay to conduct a search pattern to recover an object lost underwater.
COMPASS RUNS:	Compass runs are used to teach students to use compass bearings to navigate underwater.
MK II AGA and EXO-26 FULL FACE MASK:	These positive pressure full face masks are used in conjunction with dry suits, surface supplied, and communication systems such as the AQUACOM SSB. These are used for protection from aspiration of water molecules in polluted water diving.

ARC SURVEY:	Implementation of the arc survey allows divers to survey a designated area 316 meters. This is useful in research type diving for enumerating presence or absence of variables in a specific space. With the defined space and increments of distance makes it possible to statistically analyze the data taken. This method is currently being used by the Gulf Breeze Dive Team during the Coral Disease Surveys in the Caribbean to determine presence absence of disease on scelacterian corals.

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